

M. Antoine Breguet's Appropriations

ON looking through the recent *brochure* on the Gramme machine by M. Antoine Breguet, I observe that the author has appropriated, without acknowledgment, a large number of the beautifully executed Magnetic Figures which Prof. Silvanus Thompson has long since published, both in your columns (November 28, 1878) and elsewhere. So far as the eye can judge, M. Breguet's illustrations are printed from *clichés* of the very blocks used in Prof. Thompson's papers. If—as I understand was the case—M. Breguet's attention was called to the omission when he employed a similar illustration in a paper of his, which appeared some little time ago in the *Ann. de Chimie et de Physique*, the present oversight ought not to pass without some protest—the more emphatic as some of Prof. Thompson's figures are entirely new and of much theoretical and practical importance.

W. F. BARRETT

Royal College of Science, February 4

On the Clenching of the Hands from Emotional and other Causes in the Two Sexes

I SHOULD like to invite the attention of readers of this paper to the above subject when they have the opportunity of making personal observations, believing myself to have noticed a curious distinction. The number of my own cases, though sufficient to warrant me in broaching the topic, is not large enough to enable me to form definite conclusions. Whether the clenching of the hand be the result of mental emotion, of hysteria, or other nervous convulsion, of acute poisoning or of tetanus, women always seem to lay the thumb across the palm and fold the fingers over it, frequently wounding the skin of the ball of the thumb by the pressure of the index and middle finger-nails; while men invariably flex the fingers acutely first, now and then digging all four nails into the palm, and turn the thumb outside, across the back of the middle phalanges. About four years ago I witnessed a case of idiopathic tetanus in a black woman in Barbados; the disease had reached that advanced stage where the muscles of the extremities begin to be affected during the paroxysms, and it was interesting to observe, before actual clenching ensued, that the *thumb* first began to twitch inwardly, while the fingers were motionless. Possibly, this may be the unconscious result of habits acquired during life; I have had no opportunity of noting the phenomenon in children. Perhaps those who read this in the tropics, where there is usually plenty of tetanus, hydrophobia, and other convulsive maladies, will kindly communicate their experience.

ARTHUR STRADLING

Parhelia in the Mediterranean—The Weather in Switzerland

THE parhelia of January 27, which Mr. Ch. H. Allen in Mentone describes, has also been observed at several places in Switzerland: for instance, at Glaris and at Basle. The phenomenon has here been more completely developed; the sun appeared surrounded by two lightly-coloured halos of 46° and 92° in diameter. Owing to the sun's low altitude, little more than the semi-circumference of them was visible. Each of these halos had on its summit a tangent arc, turning its convexity towards the sun, the arc on the greater circle shining, as usual, in brilliant colours. On the inner halo, in the same altitude with the sun, two mock suns of a reddish tint were seen; a third appeared at the summit of the same circle at the junction with the tangent arc. All circles turned their red side to the sun. That part of the sky was covered with faint cirrus. The spectacle lasted from 2 to 4 p.m. In the evening of the 27th and also of the 29th the common halo of 46° diameter was seen round the moon. During the night of the 30th to the 31st some snow fell (melted 2.8 mm. in the rain-gauge), the first in this year.

On January 29, at 3.2 p.m., a brilliant meteor with a bluish trail was observed falling in a south-easterly direction; it vanished about 15° above the horizon. The same meteor was noticed at Scans in the Engadine, where a heavy detonation was heard.

The Basle section of the S.A.C. ascended Mount Pilate, near Lucerne, on January 28. The extreme transparency of the air afforded a view more splendid than is to be seen in summer. The minutest details of the Jura, and of the Black Forest and the hills of the Höhgan near the Lake of Constance, could be perceived; only the Vosges Mountains were a little dimmed.

An ocean-like fog spread over the low parts of the country at a level of about 650 m. above sea. On the summit of Mount Pilate the thermometer marked -4° C. (25° F.) during the night, and $+1^\circ$ C. (34° F.) before sunrise. Over the surface of the Lake of Lucerne the air temperature was, at noon of the 29th, -2.5° C. (27.5° F.); above the fog an hour before, $+4^\circ$ C. (39° F.).

ALBERT RIGGENBACH

Basle, February 11

On the Climate of North Northumberland as Regards its Fitness for Astronomical Observations

I HAVE looked again at my observations (p. 317), and can assure Mr. Joseph Lingwood of their entire accuracy. For astronomical purposes the sky is "completely overcast" when not a star is visible. As the observations in question referred to the year 1881, I do not see what the "weather since taken" has to do with the question, unless it be contended that the weather in January, 1881, was precisely similar to the weather in January of the present year. As a general rule the observations would refer to a later hour than 6 p.m.

JEVON J. MUSCHAMP PERRY

S. Paul's Vicarage, Alnwick, February 13

Jago's "Inorganic Chemistry"

THE kind tone of the first part of the notice, in your issue of December 15 (vol. xxv. p. 150), of my work on Inorganic Chemistry leads me, with your permission, to reply to some questions asked by the reviewer in the latter portion of his remarks. He first inquires "Why should he (the student) begin his chemical career by learning that 'combining weight' is synonymous with 'atomic weight'?" To this I answer, Because in our best standard works on chemistry these terms are applied indifferently to the same series of numbers; and further that the combining weight, a number deduced from experiment, is according to the atomic theory the relative weight of the atom of that particular element. To the query "Why should he draw from the statement of Avogadro's law the *erroneous* conclusion that the molecules of all gases are of the same size?" I reply by pointing out that Frankland states that the bulk of any elementary molecule, in the gaseous condition, is the same as that of hydrogen; and that Roscoe, Miller, and Tilden affirm that all gaseous molecules occupy the same volume. The phrase "are of the same size" is simply intended to convey, the same meaning as the term "occupy the same volume." I have not deemed it necessary in such a work as that under review to point out that the volume occupied by a molecule consists in part of intermolecular space; neither do the works of the chemists quoted when explaining the same law.

My own experience of teaching chemistry has convinced me that a knowledge of the "atomicity" of the most important elements is a vast help to even young students, as thereby they learn to write formulæ and equations not merely from memory, but in accordance with certain definite rules. The value of graphic formulæ is considerable, and with sufficient space at my disposal I should be quite prepared to demonstrate that the formula referred to of nitrous oxide does afford a reasonable hypothesis of the molecular constitution of that compound. Although I hold these opinions I have however carefully pointed out (p. 106) that the so-called laws of atomicity are not always obeyed, and have dealt at some length with the notable exception, nitric oxide NO.

I regret to thus trespass on your valuable space, but in justice to myself and the work thus reviewed I ask you to kindly insert this letter.

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["Combining weight" is not synonymous with "atomic weight," e.g. 4.6 parts by weight of nitrogen combine with 1 part by weight of hydrogen, but the atom of nitrogen is 14 times heavier than the atom of hydrogen; 8 parts by weight of oxygen combine with 1 part by weight of hydrogen, but the atomic weight of oxygen is 16, that of hydrogen being 1. In some cases, e.g. chlorine, the combining and atomic weights are represented by the same number. I admit that the terms in question are applied to the same series of numbers, in many standard books on chemistry, but I maintain that they are applied erroneously.]

I cannot admit that because "equal volumes of gases contain equal numbers of molecules" therefore "all gaseous molecules

occupy the same volume." From experiments on friction of gases, velocity of gaseous diffusion, &c., conclusions have been drawn as to the sizes of different molecules; Avogadro's law, however, says nothing as to the relative dimensions of molecules: the conclusion drawn by the author from Avogadro's law is therefore I think rightly called an "erroneous" conclusion, apart from any considerations as to the accuracy of the statement, "the molecules of all gases are of the same size."

A knowledge of the "atomicity" of the most important elements would, I admit, be of much importance. But when the evidence on which this or that value is assigned to the "atomicity" of these elements is examined, it is found in most cases to be very slight: a great structure has been raised on a shifting foundation. A student who has committed to memory the assertion that the "atomicity" of the nitrogen atom is five is probably ready to receive with gratitude the formula for nitrous oxide referred to; had he asked for the evidence on which the assertion as to the atomicity of nitrogen rests, and for an explanation of the assertion itself, he would I think hesitate before accepting the graphic formula in question as in any way affording "accurate and well-grounded information."—THE WRITER OF THE NOTICE.]

The Recent Weather

REFERRING to the leading article on "The Recent Weather" in a former number, perhaps the following proverb, prevailing I think in Norfolk, may possess some interest:—

"When Martinmas ice will bear a duck,
The winter will all be mire and muck."

Martinmas Day is on November 11. Bearing in mind that Martinmas, like Christmas, connotes a season rather than a particular day, and still more, that cold weather would usually come earlier in Scotland than in the eastern counties, the proverb seems to be entirely in unison with Sir Robert Christison's prognostic.

CHARLES J. TAYLOR

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FATHER LOBO'S "ABYSSINIA."—A correspondent asks if there is any trustworthy evidence that Lobo's "History of Abyssinia" was ever published in Portuguese, as stated in most biographies. The extracts translated by Sir Peter Wyche and published by the Royal Society in the end of the seventeenth century, were made from the manuscripts, as was also Legrand's translation in the beginning of the eighteenth, from which Dr. Johnson made his epitome. In Barbosa-Machado's "Bibliotheca Lusitana" there is no mention of a Portuguese edition.

ON THE WHALE FISHERY OF THE BASQUE PROVINCES OF SPAIN¹

MY attention was drawn to the Basque Whale-Fishery by observing, during my study of Arctic literature, and especially while editing the voyages of William Baffin, that the first English whaling vessels were in the habit of shipping a boat's crew of Basques to harpoon the whales. I was informed that a whale, the *Balæna biscayensis*, had frequented the coasts of the Basques provinces from time immemorial; but that it had become nearly extinct in the seventeenth century, when the Basques began to extend their voyages further north, and across the Arctic Circle. Hence the Basques had become dexterous whale-fishers long before any other European people had entered upon that perilous occupation.

I found that several naturalists had investigated the history of the Biscayan whale, notably Eschricht and Reinhardt in Denmark, M. Fischer in France, and Prof. Flower in this country. Full information respecting these investigations is contained in Eschricht and Reinhardt's memoir, published by the Ray Society in 1866; and many interesting particulars have since been brought to light respecting the whale-fishery so far as it relates to the French Basques, and to the ports of Bayonne, Biarritz, Guétary, St. Jean de Luz, and Ciboure. But in looking through the books and papers on the subject, a list of which was kindly

¹ By Clements R. Markham, C.B., F.R.S. Read at the Zoological Society, December 13. Revised by the Author.

furnished to me by Prof. Flower last June, I did not find any particulars respecting the Spanish ports, where the Basque sailors are more numerous than in France, and inhabit a more extensive line of coast. I therefore thought it possible that, by visiting those ports and making inquiries respecting the literature of the provinces in which they are situated, and the local traditions, I might be able to collect some further information touching the whale-fishery of the Basques. It has now been suggested to me that such particulars as I have succeeded in bringing together, from their bearing on the history of the *Balæna biscayensis*, a nearly extinct animal, would be interesting to the Zoological Society. I therefore have pleasure in communicating the following notes on the subject.

The coast which I personally visited this summer extends from the French frontier to the Cabo de Peñas, including the Basque provinces of Guipuzcoa and Vizcaya, and the purely Spanish provinces of Santander and the Asturias. It is for the most part bold and rocky, with lofty cliffs of cretaceous limestone, having strata hove up at great angles. Occasionally there is a stretch of sand, generally at the mouths of rivers, and here and there a rocky little boat-harbour. Forests of oak and chestnut clothe the mountains, with occasionally open spaces of fern and heather and bushes of arbutus and myrtle. In some places the chestnut-groves come down almost to the water's edge. Along this coast there are many small fishing-towns. Fuenterrabia, on its picturesque hill, overlooks the French frontier. Following the coast to the westward the next port is Pasajés, and then comes the city of San Sebastian, which was the centre of the old whale-fishery. Zarauz is a town stretching along the shores of a sandy bay. Guetaria is built in a cleft of rocks which are sheltered behind the island of San Anton. Zumaya and Deva are at the mouths of rivers; and Motrico is a picturesque little town built on steep slopes like Clavelly, overlooking a rocky bay. These are the ports of Guipuzcoa.

Ondarroa, at the mouth of its river, where small schooners are still built, is the first port of Vizcaya, coming from the east. Lequeitio is a large and more important place, sending out about a hundred fishing-boats. Next come Mundaca, at the mouth of the river of Guernica, Bermeo, another populous fishing-town with as many boats as Lequeitio, Plencia, and Portugalete and Santurce in the bay of Bilbao. These are the principal Vizcayan ports. The province of Santander has Castro-Urdiales, Laredo and Santoña on the shores of a large harbour, Santander itself, and San Vicente de la Barquera. In the Asturias are the ancient ports of Llanes, Rivadesella, Villaviciosa, the important town of Gijón, Candas, and Luanco. From the little village of Luanco to the end of the Cabo de las Peñas is a walk of eight miles, and this was the most western point I reached.

The Basque fishermen are a handsome race. They go away on their fishing-voyages for many days, and are brave, honest, and industrious; while both men and women are always cheerful and light-hearted. They belong to a people who, for centuries, have repelled foreign invasion, have enjoyed free institutions, and made their own laws. The Basque fishermen are the descendants of the old whalers, and retain their traditions. They have, from time to time, produced naval worthies whose names are historical. Among them are Sebastian del Cano, a native of the little fishing-town of Guetaria, who was the first circumnavigator of the globe; Legaspi, the conqueror of the Philippine Islands; Machin de Munguia, the Spanish Grenville; and Churrua, whose gallantry at the battle of Trafalgar won for him the admiration of his English foes.

Such men were the product of the whale-fishery, which was for the Basques, as it has since been for the British, an admirable nursery for seamen.

My first inquiries had reference to the antiquity of the